

# **Everything theorists (including me) tell you is wrong**

- **The true DM story both richer and weirder than current models**
- **“Dark energy” is just a placeholder, like “the ether” or “the vault of the heavens”**
- **“Inflation” is a dynamical process yet to be embedded in a comprehensive physical framework (who is the inflaton?)**
- **All theories of modified GR are physically inconsistent**

# **All cosmologists are catholics**

- **If you believe in inflation, then you believe that there are quantum scalar fields whose vacuum energy acts as an effective cosmological constant that drives accelerated cosmic expansion**
- **If you believe that dark energy is a cosmological constant, then you believe that the vacuum energy of quantum fields does not drive cosmic expansion, and that something else (as yet unidentified) does**
- **When you don't have a coherent theoretical framework that relates different phenomena that ought to be related, you are lost**

# **String theory will not rescue theoretical cosmology**

- **String theory is not a theory, it is an algorithm to generate models that are consistent with certain physical principles and assumptions**
- **While it is possible to make string models that make contact with inflation and string models that make contact with particle physics at the LHC, this is not the same as connecting these**
- **The string landscape is not a theory of anything, nor is it derived from a theory of anything (not even strings)**
- **Holography is a powerful idea, but it is derived from black holes, and its explicit implementation in string theory does not seem to generalize**